



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

May 30, 2007

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Sutton Brook Disposal Area Superfund Site

FROM: David E. Cooper, Chair *David E. Cooper*
National Remedy Review Board

TO: James T. Owens, Director
Office of Site Remediation and Restoration
U.S. EPA Region 1

Purpose

The National Remedy Review Board (the Board) has completed its review of the proposed cleanup action for the Sutton Brook Disposal Area Superfund Site in Tewksbury, Massachusetts. This memorandum documents the Board's advisory recommendations.

Context for Board Review

The Administrator announced the Board as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The Board furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The Board evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the



range of alternatives that address site risks; the quality and reasonableness of the cost estimates for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the Board makes advisory recommendations to the appropriate regional decision maker. The Region will then include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the Region is expected to give the board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the Region's final decision. The Board expects the Regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the Board does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The Sutton Brook Disposal Area Superfund site is dominated by a mixed-waste, 40-acre landfill divided into two main lobes. Sutton Brook flows between the lobes. The landfill was in operation from the 1950s until the late 1980s. The Site is located primarily in Tewksbury Massachusetts and is surrounded by residential properties, an agricultural property and undeveloped land. There are numerous wetlands associated with Sutton Brook, in and around the site. Contaminated media at the site include ground water, soil, sediment and surface water.

The Region anticipates proposing a site-wide remedy based upon a combination of Feasibility Study alternatives. This remedy would include consolidation into the landfills of contaminated soils from the former drum disposal area and garage and storage area as well as impacted sediments from Sutton Brook, and capping of the two landfill lobes in accordance with RCRA Subtitle C ARARs. Ground water migration from the southern landfill lobe would be intercepted by an impermeable vertical barrier, which will divert the contaminated ground water plume away from the brook and towards the west. Ground water at the western edge of the Southern lobe would be extracted and treated. The overall goal of ground water remediation would be to restore contaminated ground water outside of the waste management area(s) to drinking water standards. Portions of the plume not within the capture zone of the ground water treatment system would be restored using a combination of the planned source control activities and monitored natural attenuation (MNA). The planned remedy would also include a contingency to expand the capture zone of the pump and treat remedy should MNA not prove effective. The estimated total present value of this preferred alternative, including construction and operation and maintenance is approximately \$33.9 million.

NRRB Advisory Recommendations

The Board reviewed the information package describing this proposal and discussed related issues with Don McElroy, Bob Cianciarulo, Larry Brill, and Man Chak Ng from EPA

Region 1 and Jay Naparstek, Paul Craffey, and Janet Waldron from Massachusetts Department of Environmental Protection on April 12, 2007. Based on this review and discussion, the Board offers the following comments:

1. The information presented to the Board did not include data concerning specific monitored natural attenuation (MNA) mechanisms that are affecting ground water contamination. The Region's decision to propose an MNA remedy should reflect understanding of the specific physical, biological, and chemical mechanisms being relied upon to achieve remedial action objectives for ground water (see "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites," April 1999, OSWER Directive 9200.4-17P). The Region should develop the information about the mechanisms of natural attenuation being relied upon and describe these in the decision documents, along with the measurable parameters that will be used to conduct periodic evaluations of the efficacy of the MNA remedy.
2. Monitored natural attenuation (MNA) is proposed as a remedial alternative by itself, and as part of a combined remedy, to treat subsurface contamination related to the Sutton Brook landfill units and former drum disposal area (FDDA). The review package reports that MNA will "actively reduce the toxicity, mobility, and volume of contaminants" in ground water and that there will be "no treatment residuals." However, the package also questions the effectiveness of MNA at the site: "At this time, the full effect of the natural attenuation, its effect on organic contaminants, and the net effect of the ground water environment on inorganic contamination, is not completely clear." Given the presence of multiple contaminants (organic and inorganic contaminants, transformation products, and naturally occurring compounds with the potential to be mobilized) and the variation in geochemical conditions across the site (e.g., anaerobic/aerobic conditions, presence/absence of certain electron acceptors, presence/absence of certain levels of electron donors), natural attenuation processes will be very complex and rates of attenuation will be location and compound specific. Based on the limited information provided in the package, MNA has not been evaluated to the degree necessary to consider it as an appropriate remedy for the site. The Board recommends that the Region conduct a complete evaluation of natural attenuation at the site, for all contaminants of concern across the range of geochemical settings that could be encountered, before MNA is included as part of the preferred alternative.
3. The preferred alternative includes MNA for several portions of the contaminated ground water following source control. The preferred alternative should clearly designate which areas will rely on MNA and describe a contingency for a more active remedial approach if MNA is not effective. The package did not include a discussion of triggers for invoking a contingency nor did it indicate the points of compliance for meeting ground water standards. The Board recommends that the Region evaluate appropriate definitions of success for MNA and what criteria would trigger more active ground water remediation. The decision documents should describe the contingent remedy that would be invoked or outline a process for its evaluation (e.g., focused feasibility study), and also should describe the points of compliance for meeting

ground water standards, which as indicated in the NCP preamble (55 FR 8753, March 8, 1990) should be at the boundary of the waste management area.

4. Based on the information provided in the package, it is unclear to the Board how the local geology and hydrogeology influence vertical and lateral contaminant migration. Of particular interest are the bedrock/till interface and potential DNAPL pathways. The Board recommends that prior to issuance of the decision documents, the Region evaluate whether further refinement of the geologic/hydrogeologic conceptual site model may be warranted. The Region can then determine whether the preferred ground water alternative will be sufficient to capture ground water contamination or whether the Region may want to modify the remedy to more effectively or efficiently capture ground water contamination. The Board also recommends that the decision documents describe the conceptual site model, including geological/hydrogeological aspects.

5. The package presented to the Board did not include an adequately detailed presentation of ground water treatment trains or discharge options for the proposed pump and treat remedies. The Board recommends that the decision documents include a discussion of the options being considered, along with appropriate pilot tests that may inform the choice among the options.

6. The material presented to the Board indicated that the vertical ground water barrier would be keyed to bedrock. The cost estimate was based on a 30-foot deep barrier. The Board recommends that the Region confirm the required depth and engineering during design to ensure that the barrier is keyed to a low permeability unit.

7. The Board agrees, based on the information in the package, that the RCRA Subtitle C cap requirements are ARARs. The Board recommends that decision documents specify that the cap meet the performance based standards of the subtitle C cap rather than specify a particular cap design.

8. The package did not provide information on cleanup levels for the former drum disposal area soils, the garage/storage area, the sediment, or the wetland soils. The Board recommends that the Region develop cleanup levels and that the decision documents specify the numeric levels and their rationale.

The Board appreciates the Region's efforts in working together with the potentially responsible parties, State, and community groups at this site. We request that a draft response to these findings be included with the draft Proposed Plan when it is forwarded to your OSRTI Regional Support Branch for review. The Regional Support Branch will work with both me and your staff to resolve any remaining issues prior to your release of the Proposed Plan. Once your response is final and made part of the site's Administrative Record, then a copy of this letter and your response will be posted on the Board website (<http://www.epa.gov/superfund/programs/nrrb/>).

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8763 should you have any questions.

cc: J. Woolford (OSRTI)
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NRRB members